

REMARKS

By the foregoing Amendment, Claims 1, 4, 8, 14, 16-20 and 24 have been amended, Claims 3, 9, 10 and 15 have been cancelled, and new Claims 25 and 26 have been added. Favorable reconsideration of the application is respectfully requested.

Claims 1-24 were rejected under 35 U.S.C. §112, second paragraph, on the grounds of indefiniteness. The Examiner indicated that the terms "apparatus" after "from" in Claim 1, and "closed loop" after "in" in Claims 8, 14, 19 and 23 lacked antecedent basis. It is believed that the Examiner intended to refer to Claim 24 instead of Claim 23 as lacking antecedent basis for the term "closed loop." Claim 1 has been amended to provide antecedent basis for the term "apparatus," and Claims 8, 14, 19 and 24 have been amended to specify that the electronic controller provides "a closed loop control system," so that it is believed that the rejection of Claims 1-24 on the grounds of indefiniteness can be withdrawn.

Claims 1-2, 5-8, 11-14 and 19 were rejected under 35 U.S.C. §102(b) on the grounds of anticipation by Sturman (US Patent 5,829,396), or in the alternative, under 35 U.S.C. §103(a), on the grounds of obviousness from Sturman '396. Claim 3 was not rejected, and the subject matter of Claim 3 has been incorporated into Claim 1, so that Claim 1 now recites "a sleeve surrounds the spool and defines the spool chamber in which the spool is slidable, the sleeve having a first port through which the first fluid conduit communicates with the spool chamber, a second port through which the second fluid conduit communicates with the spool chamber and a third port through which the

third fluid conduit communicates with the spool chamber, and wherein the valve has an adjustment mechanism for sliding the sleeve relative to the valve housing." It is respectfully submitted that Claims 1-2, 5-8, 11-14 and 19 patentably distinguish Sturman '396, and that the rejections of Claims 1-2, 5-8, 11-14 and 19 on the grounds of anticipation and obviousness from Sturman '396 should be withdrawn.

New Claims 25 and 26 distinguish over Sturman '396 because they make clear that the opposed springs engage the spool directly so that when the spool moves from its rest position, one spring is compressed while the other extends. This is different from the situation in Sturman. As is shown in Figure 2 of Sturman '396, there is a component 68 described as a "needle assembly" in the text, and as is explained in Sturman '396 at column 3, lines 27-28, "Each spring 66 is captured by the housing 48 and a needle assembly 68." Referring to Figure 2 of Sturman '396, the needle assembly 68 comprises a threaded bolt which has a screw thread which engages a threaded part of an abutment member (not referenced in Sturman '396) which then abuts the movable spool 62. The threaded bolts 68 extend outside the valve housing and each have a head portion which limits movement of the bolt into the housing.

Looking at the spool 62 in Figure 2 of Sturman '396, if the spool 62 moves to the left as shown in Figure 2, then the spring 66 on the left-hand side will be compressed, but the spring 66 on the right-hand side will not extend. The extension of the spring 66 on the right-hand side is limited because it acts on the abutment member (not referenced) rather than directly on the spool 62, and the abutment member cannot extend further into the spool housing because its motion is limited by the head of the threaded bolt.

Similarly, if the spool 62 moves to the right of its illustrated position then the spring 66 on the right-hand will compress and the threaded bolt 69 will slide outwardly of the housing, but the spring 66 on the left-hand side will not extend, because the threaded bolt 68 with which it is associated cannot slide further into the housing. This gives a very different characteristic to the characteristic of the present invention, in which the two opposed springs remain in contact with the spool throughout its movement. This is illustrated in the charts attached as Exhibit A, depicting Current vs. Force (N) and Displacement vs. Force (N).

In light of the foregoing amendments and remarks, it is respectfully submitted that the application should now be in condition for allowance, and an early favorable action in this regard is respectfully requested. The Commissioner is authorized to charge any deficiencies or fees in connection with this amendment to Deposit Account No. 06-2425.

Respectfully submitted,
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